Listing of the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1-100 (cancelled)

101. (previously presented) An isolated polynucleotide encoding a non-endogenous, constitutively activated version of a human G protein-coupled receptor, wherein said polynucleotide is selected from the group consisting of:

(a) a polynucleotide comprising a nucleotide sequence consisting of a coding sequence for the polypeptide of SEQ ID NO:130;

(b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:129; and

(c) a polynucleotide comprising a nucleotide sequence encoding the polypeptide of SEQ ID NO:130.

102. (currently amended) An isolated polynucleotide encoding a non-endogenous, constitutively activated version of a human G protein-coupled receptor, wherein said polynucleotide is selected from the group consisting of:

(a) a polynucleotide consisting ~~essentially~~ of a nucleotide sequence consisting of a coding sequence for the polypeptide of SEQ ID NO:130;

(b) a polynucleotide consisting ~~essentially~~ of the nucleotide sequence of SEQ ID NO:129;

(c) a polynucleotide consisting ~~essentially~~ of a nucleotide sequence encoding the polypeptide of SEQ ID NO:130.

103. (previously presented) A vector comprising the polynucleotide of claim 101 or claim 102.

104. (previously presented) The vector of claim 103, wherein said vector is an expression

vector, and said polynucleotide is operably linked to a promoter.

105. (previously presented) A recombinant host cell comprising the vector of claim 103.

106. (previously presented) A recombinant host cell comprising the vector of claim 104.

107. (previously presented) A process for making a recombinant host cell comprising the steps of:

(a) transfecting the expression vector of claim 104 into a suitable host cell; and

(b) culturing the host cell under conditions which allow expression of a non-endogenous, constitutively activated version of a human G protein-coupled receptor from the expression vector.

108. (previously presented) A membrane of the recombinant host cell of claim 105 comprising said non-endogenous, constitutively activated version of said human G protein-coupled receptor.

109. (previously presented) An isolated polynucleotide encoding a non-endogenous, constitutively activated version of a human G protein-coupled receptor, wherein said polynucleotide is selected from the group consisting of:

(a) a polynucleotide comprising a nucleotide sequence consisting of a coding sequence for the polypeptide of SEQ ID NO:130 wherein the codon corresponding to lysine at amino acid position 297 has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine;

(b) a polynucleotide comprising the nucleotide sequence of SEQ ID NO:129 wherein the codon at nucleotide positions 889-891 corresponding to lysine has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine; and

(c) a polynucleotide comprising a nucleotide sequence encoding the polypeptide of SEQ ID NO:130 wherein the codon corresponding to lysine at amino acid position 297 has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine.

110. (currently amended) An isolated polynucleotide encoding a non-endogenous, constitutively activated version of a G protein-coupled receptor, wherein said polynucleotide is selected from the group consisting of:

(a) a polynucleotide consisting ~~essentially~~ of a nucleotide sequence consisting of a coding sequence for the polypeptide of SEQ ID NO:130 wherein the codon corresponding to lysine at amino acid position 297 has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine; and

(b) a polynucleotide consisting ~~essentially~~ of the nucleotide sequence of SEQ ID NO:129 wherein the codon at nucleotide positions 889-891 corresponding to lysine has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine

(c) a polynucleotide consisting ~~essentially~~ of a nucleotide sequence encoding the polypeptide of SEQ ID NO:130 wherein the codon corresponding to lysine at amino acid position 297 has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine.

111. (previously presented) A vector comprising the polynucleotide of claim 109 or claim 110.

112. (previously presented) The vector of claim 111, wherein said vector is an expression vector, and said polynucleotide is operably linked to a promoter.

113. (previously presented) A recombinant host cell comprising the vector of claim 111.

114. (previously presented) A recombinant host cell comprising the vector of claim 112.

115. (previously presented) A process for making a recombinant host cell comprising the steps of:

(a) transfecting the expression vector of claim 112 into a suitable host cell; and

(b) culturing the host cell under conditions which allow expression of a non-endogenous, constitutively activated version of a G protein-coupled receptor.

116. (previously presented) A membrane of the recombinant host cell of claim 113 comprising said non-endogenous, constitutively activated version of said G protein-coupled receptor.

117. (previously presented) An isolated polynucleotide encoding a G protein fusion construct of a non-endogenous, constitutively activated version of a G protein-coupled receptor, wherein said polynucleotide comprises the nucleotide sequence of SEQ ID NO:129.

118. (previously presented) An isolated polynucleotide encoding a G protein fusion construct of a non-endogenous, constitutively activated version of a G protein-coupled receptor, wherein said polynucleotide comprises a nucleotide sequence consisting of a coding sequence for the polypeptide of SEQ ID NO:130.

119. (previously presented) An isolated polynucleotide encoding a G protein fusion construct of a non-endogenous, constitutively activated version of a G protein-coupled receptor, wherein said polynucleotide comprises a nucleotide sequence selected from the group consisting of:

(a) a nucleotide sequence consisting of a coding sequence for the polypeptide of SEQ ID NO:130 wherein the codon corresponding to lysine at amino acid position 297

has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine; and

(b) the nucleotide sequence of SEQ ID NO:129 wherein the codon at nucleotide positions 889-891 corresponding to lysine has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine

(c) a nucleotide sequence encoding the polypeptide of SEQ ID NO:130 wherein the codon corresponding to lysine at amino acid position 297 has been left unchanged or has been substituted with a codon corresponding to an amino acid other than valine.

120. (previously presented) A vector comprising the polynucleotide of any one of claims 117, 118 or 119.

121. (previously presented) The vector of claim 120, wherein said vector is an expression vector, and said polynucleotide is operably linked to a promoter.

122. (previously presented) A recombinant host cell comprising the vector of claim 120.

123. (previously presented) A recombinant host cell comprising the vector of claim 121.

124. (previously presented) A process for making a recombinant host cell comprising the steps of:

(a) transfecting the expression vector of claim 121 into a suitable host cell; and

(b) culturing the host cell under conditions which allow expression of a G protein fusion construct of a non-endogenous, constitutively activated version of a G protein-coupled receptor, from the expression vector.

125. (previously presented) A membrane of the recombinant host cell of claim 122 comprising said G protein fusion construct.

126. (previously presented) An isolated polynucleotide of any of claims 117, 118 or 119 wherein said G protein of said G protein fusion construct is Gsα.

127. (previously presented) A vector of claim 120 wherein said G protein of said G protein fusion construct is Gsα.

128. (previously presented) A vector of claim 121 wherein said G protein of said G protein fusion construct is Gsα.

129. (previously presented) A recombinant host cell of claim 122 wherein said G protein of said G protein fusion construct is Gsα.

130. (previously presented) A recombinant host cell of claim 123 wherein said G protein of said G protein fusion construct is Gsα.

131. (previously presented) The process of claim 124 wherein said G protein of said G protein fusion construct is Gsα.

132. (previously presented) The membrane of claim 125 wherein said G protein of said G protein fusion construct is Gsα.

133. (New) A method for identifying one or more candidate compounds as modulators of a G protein-coupled receptor comprising the amino acid sequence of SEQ ID NO:130, comprising the steps of:

(a) contacting said one or more compounds with a host cell or with membrane of a host cell that expresses said receptor; and

(b) measuring the ability of the compound or compounds to inhibit or stimulate functionality of said receptor.

134. (New) The method of claim 133 wherein said host cell comprises an expression vector, said expression vector comprising a polynucleotide encoding a G-protein coupled receptor comprising the amino acid sequence of SEQ ID NO:130.

135. (New) A method for identifying one or more candidate compounds as modulators of a G protein-coupled receptor comprising the amino acid sequence of SEQ ID NO:130, wherein the lysine at amino acid position 297 of SEQ ID NO:130 has been left unchanged or has been substituted with an amino acid other than valine, comprising the steps of:

(a) contacting said one or more compounds with a host cell or with membrane of a host cell that expresses said receptor; and

(b) measuring the ability of the compound or compounds to inhibit or stimulate functionality of said receptor.

136. (New) The method of claim 135 wherein said host cell comprises an expression vector, said expression vector comprising a polynucleotide encoding a G protein-coupled receptor comprising the amino acid sequence of SEQ ID NO:130, wherein the lysine at amino acid position 297 of SEQ ID NO:130 has been left unchanged or has been substituted with an amino acid other than valine.

137. (New) A method for identifying one or more candidate compounds as a modulator of a G protein-coupled receptor, comprising the steps of:

(a) providing a host cell or membrane from a host cell that expresses a GPCR Fusion

Protein, said GPCR Fusion Protein comprising:

(i) said G protein-coupled receptor, wherein said receptor comprises the amino acid sequence of SEQ ID NO:130; and

(ii) a G protein;

(b) contacting one or more candidate compounds with said host cell or said membrane; and

(c) measuring the ability of the compound or compounds to inhibit or stimulate functionality of said receptor.

138. (New) The method of claim 137 wherein said G protein is Gsα.

139. (New) The method of claim 137 wherein said host cell comprises an expression vector, said expression vector comprising a polynucleotide, said polynucleotide encoding a GPCR Fusion Protein, said GPCR Fusion Protein comprising:

(a) a G protein-coupled receptor, wherein said receptor comprises the amino acid sequence of SEQ ID NO:130; and

(b) a G protein.

140. (New) The method of claim 139 wherein said G protein is Gsα.

141. (New) A method for identifying one or more candidate compounds as a modulator of a G protein-coupled receptor, comprising the steps of:

(a) providing a host cell or membrane from a host cell that expresses a GPCR Fusion Protein, said GPCR Fusion Protein comprising:

(i) said G protein-coupled receptor, wherein said receptor comprises the amino acid sequence of SEQ ID NO:130, wherein the lysine at amino acid position 297 of SEQ ID NO:130 has been left unchanged or has been substituted with an amino acid other than valine;

and

(ii) a G protein;

(b) contacting one or more candidate compounds with said host cell or said membrane; and

(c) measuring the ability of the compound or compounds to inhibit or stimulate functionality of said receptor.

142. (New) The method of claim 141 wherein said G protein is Gsα.

143. (New) The method of claim 141 wherein said host cell comprises an expression vector, said expression vector comprising a polynucleotide, said polynucleotide encoding a GPCR Fusion Protein, said GPCR Fusion Protein comprising:

(a) a G protein-coupled receptor, wherein said receptor comprises the amino acid sequence of SEQ ID NO:130, wherein the lysine at amino acid position 297 of SEQ ID NO:130 has been left unchanged or has been substituted with an amino acid other than valine; and

(b) a G protein.

144. (New) The method of claim 143 wherein said G protein is Gsα.